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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,091	10/23/2001	Iran David Johnson	A34272-PCT-U	9807

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EXAMINER

SCHEIBEL, ROBERT C

ART UNIT PAPER NUMBER

2666

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/869,091	JOHNSON ET AL.	
	Examiner	Art Unit	
	Robert C. Scheibel	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 23 October 2001.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-12 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-12 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20050920 8/19/01</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - Line 11 of page 6 contains the phrase “using buffers switches the system runs the risk”; this phrase does not make sense and should be modified accordingly.Appropriate correction is required.
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. The abstract of the disclosure is objected to because of the following informalities:
 - The phrase “A data switch for handling packets of information switch comprises input traffic managers,” does not make sense and should be reworded. A suggested correction is: “A data switch for handling packets of information. The switch comprises input traffic managers,”. Please make corrections by submitting the new abstract (with changes indicated) on a separate sheet of paper.

Correction is required. See MPEP § 608.01(b).

Claim Objections

4. Claim 1 is objected to because of the following informalities:
 - On line 9, “devices]” should be changed to “devices”.
 - On line 18, “units`” should be changed to “units”.

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- On line 23, “said requests” should be changed to “said transfer requests” for clarity (see line 25 for example).
5. Claim 3 is objected to because of the following informalities:
- On lines 2-3, “output manager units” should be changed to “output traffic manager units” for clarity.
6. Claim 6 is objected to because of the following informalities:
- On lines 2-3, “said requests” should be changed to “said transfer requests” for clarity.
7. Claim 7 is objected to because of the following informalities:
- On line 20, “said request” should be changed to “said transfer request” for clarity.
8. Claim 9 is objected to because of the following informalities:
- On lines 2-3, “output manager units” should be changed to “output traffic manager units” for clarity.
9. Claim 12 is objected to because of the following informalities:
- On line 3, “said requests” should be changed to “said transfer requests” for clarity.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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11. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the data switch" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the protocol information packets" in lines 11-12. There is insufficient antecedent basis for this limitation in the claim. This rejection can be overcome by removing the word "the" from the above-cited limitation.

Claim 1 recites the limitation "said cell headers" in line 25. There is insufficient antecedent basis for this limitation in the claim. The previous paragraph discusses a particular cell and its *one* header; claim 1 discusses a packet being segmented into multiple cells earlier. It is unclear to which of these this limitation refers.

Claim 1 recites the limitation "said transfer requests" in line 25. There is insufficient antecedent basis for this limitation in the claim. The previous paragraph discusses a particular cell and the *one* transfer request generated in response.

Claim 1 recites the limitation "the cells" in line 28. There is insufficient antecedent basis for this limitation in the claim. The previous paragraph discusses a particular cell and its *one* header; claim 1 discusses a packet being segmented into multiple cells earlier. It is unclear to which of these this limitation refers. The claim should be reworded to either properly distinguish between these two references (cells and cell) or should be reworded to make it clear that they are the same entity.

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Claims **3 and 9** recite the limitation "the group of output manager units" in line 2 and lines 2-3, respectively. There is insufficient antecedent basis for this limitation in the claim. Specifically, it is unclear if the claim indicates that the router maintains a queue for each group or for each unit within the group. The examiner believes it is the latter and suggests removing the limitation "the group of" from the claims to overcome this rejection.

Claims **4 and 10** recite the limitation "the group of input traffic manager units" in line 2 and lines 2-3, respectively. There is insufficient antecedent basis for this limitation in the claim. Specifically, it is unclear if the claim indicates that the router maintains a queue for each group or for each unit within the group. The examiner believes it is the latter and suggests removing the limitation "the group of" from the claims to overcome this rejection.

Claim **7** recites the limitation "the protocol information packets" in lines 11-12. There is insufficient antecedent basis for this limitation in the claim. This rejection can be overcome by removing the word "the" from the above-cited limitation.

Claim **7** recites the limitation "the cell header" in lines 17-18 and 18-19. There is insufficient antecedent basis for this limitation in the claim. This rejection can be overcome by changing the above-cited limitation to "the cell header associated with the cell from an input traffic manager unit".

Claim **7** recites the limitation "the cell" in line 24. There is insufficient antecedent basis for this limitation in the claim.

Claim **7** recites the limitation "said cell headers" in line 27. There is insufficient antecedent basis for this limitation in the claim. There are multiple cell header(s) described earlier in the claim to which this could refer.

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Claim 7 recites the limitation "the cells" in line 31. There is insufficient antecedent basis for this limitation in the claim. This rejection can be overcome by removing the word "the" from the above-cited limitation.

Claims 2, 5-6, 8, and 11-12 are rejected as dependent on indefinite claims as specified above.

Allowable Subject Matter

12. Claims 1-12 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

13. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record discloses all the limitations of the claims with the exception of the first and second arbitration processes and their relation to one another as stated in the claim language. Specifically, the two closest pieces of prior art are U.S. Patent 6,563,837 to Krishna et al and "Tiny Tera: A Packet Switch Core" by McKeown et al. Both of these references disclose the various components of the switching apparatus specified in claims 1 and 7. Both devices also perform an arbitration process to select a pair of input and output routers to be connected via the switch fabric (the first arbitration process) as well as an arbitration process to select which cell to be sent through this connection. However, neither of these references discloses explicitly or suggests the limitation of (as part of the first arbitration process) "controlling the switch fabric to connect the selected input routers to the corresponding selected output routers; (c) upon it being determined that a given input router is to be connected to a given output router, performing a second arbitration process at that given input router to select a single virtual output queue, from

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among the virtual output queues for the output traffic manager units to which the given output router sends cells, and transmitting the cell at the head of the selected virtual output queue across the switch fabric to the given output router”, in combination with the remaining limitations of these claims. In both of these references and the prior art of record, the second arbitration process is performed first, prior to the second arbitration process. That is, the specific cell and/or virtual output queue is selected on the input router and *then* the input-output combination is selected and connected in the switch fabric.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,865,154 to Charny et al and U.S. Patent 6,072,772 to Charny et al disclose a method for providing bandwidth and delay guarantees in combined input-output buffered crossbar switches. U.S. Patent 6,351,466 to Prabhakar et al discloses a method for the operation of switching systems including switch scheduling similar to the present invention. U.S. Patent 6,515,991 to McKeown discloses combined unicast and multicast scheduling. U.S. Patent 6,539,025 to Manning et al discloses priority arbitration for point-to-point and multipoint transmission. U.S. Patent 6,667,984 to Chao et al discloses methods for arbitrating output port contention in a switch having virtual output queuing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert C. Scheibel whose telephone number is 571-272-3169. The examiner can normally be reached on Monday and Thursday from 6:30-5:00 Eastern Time.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RCS 9-29-05
Robert C. Scheibel
Examiner
Art Unit 2666



DANG TON
PRIMARY EXAMINER